# Estimated Design Hours for Bridges and Related Structures

Based on design times reported from 1980 to 1988, the table of design rates ($/Hour) based on 1988 dollars, has been updated. The design hours obtained by dividing the cost by the design rate represents the *total* design effort including design, detail, check and quantities.

Prior to the Type Selection Meeting an estimate of the design time required, based on the GP estimate of cost, will be made and entered on the Type Selection Form.

After the Type Selection Meeting, the Design Engineer, at his or her option, may use the hours per plan sheet method of refining the design hour estimate. Hours per sheet may vary from 80 to 120 with 100 as a nominal value. Do not include Log of Test Borings or Standard Sheets. The final estimate will be reviewed and approved by the Design Supervisor.

Form H-BD-D103, "Monthly Design Hour Summary", is to be completed for each structure design and submitted to the Design Supervisor at completion of P&Q. Submit with a reduced General Plan of the work involved. The BPRS printout may be attached or substituted for the H-BD-D103.

New design hour rates will be published periodically as more current data becomes available.

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Attachment

Supersedes Memo to Designers 1-4 dated March 1988

# Estimated Design Hours

| | Average Design Rate $ per Design Hour |
|---|---|
| **Slab Bridges** | |
| Single Span | 1,000 |
| 2 and 3 Spans | 1,400 |
| 4 or more Spans | 1,800 |
| **Box Girder or T-Beams** | |
| Single Span | 1,400 |
| Parallel Single | 1,800 |
| 2 or 3 Spans | 1,500 |
| 4 or 5 Spans | 1,800 |
| 6 or more Spans(Bridges) | 2,200 |
| 6 or more Spans (Viaducts) | 2,500 |
| **Steel Girders** | |
| All Spans | 1,500 |
| **Precast Girders** | |
| All Types | 1,600 |
| **Underpasses** | 1,000 |
| **POC, Bike Bridges, Utility Bridges, etc.** | 800 |
| **Culvert** | |
| All Types | 1,500 |
| **Widening** | |
| All Types | 1,000 |
| **Earthquake Restrainers and Column Retrofit** | 800 |
| **Standard Miscellaneous Designs** | 1,500 |
| Railing Modification | |
| Standard Sound Walls | |
| Standard Retaining Wall including MSE and Cribwalls | |
| **Non-Standard Miscellaneous Designs** | 1,000 |
| Strengthening | |
| Pile Lagging and Tieback Walls | |

$$\text{Estimated Design Hours} = \frac{\text{Project Cost}}{\text{Above Rate}} = \begin{bmatrix} \text{Design} & = 35\% \\ \text{Detail} & = 30\% \\ \text{Check} & = 20\% \\ \text{Quantities} & = 15\% \end{bmatrix}$$

Note: The Section Leader may adjust the Estimated Design Hours ±25% taking into account the complexity of the work, experience of project personnel, repetition of details, etc.